UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,089	08/26/2003	Samuel H. Gellman	09820.286	2777

25005 7590 06/11/2009

Intellectual Property Dept.
Dewitt Ross & Stevens SC
2 East Mifflin Street
Suite 600
Madison, WI 53703-2865

EXAMINER	
KOSAR, ANDREW D	

ART UNIT	PAPER NUMBER
1654	

NOTIFICATION DATE	DELIVERY MODE
06/11/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket-ip@dewittross.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/648,089
Filing Date: August 26, 2003
Appellant(s): GELLMAN ET AL.

Joseph T. Leone
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 13, 2009 appealing from the Office action mailed August 19, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

With regards to the rejection under 35 USC § 101, the rejection is a lack of a specific, substantial or credible utility. Appellant identifies only a "lack of credible utility" as the grounds of rejection.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Kim, Y.J. "Synthesis of (3R)-Carboxy Pyrrolidine (a ß-Proline Analog) and its Oligomer" Bioorganic and Medicinal Chemistry Letters, vol. 10 (2000), pp. 2417-2419.

Schmitt, M.A. Journal of the American Chemical Society. vol. 127, no. 38 (2005), pp. 13130-13131.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC §§ 101 and 112

35 U.S.C. 101 reads as follows:
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 4 and 6 are/remain rejected under 35 U.S.C. § 101, for the reasons of record and those set forth below, because the claimed invention is not supported by either a specific or substantial asserted utility or a well established utility.

Claims 4 and 6 are/remain rejected under 35 U.S.C. § 112, first paragraph (enablement), for the reasons of record. Specifically, since the claimed invention is not supported by either a specific or substantial asserted utility or a well established utility for the reasons set forth under 35 USC § 101, one skilled in the art clearly would not know how to use the claimed invention.

KIM (Y.J. Kim et al. Bioorg. Med. Chem. Let. (2000) 10, pages 2417-2419) teaches β-Pro_{10}-Tyr, (previously relied upon under 35 USC § 102). Kim examined "the possibility that β-peptide can substitute for the natural peptide" (page 2418) as a ligand of profilin and that it "failed to bind profilin, whereas the corresponding α-L-proline decamer bound tightly to this protein" (Abstract). Here, Kim provides the possibility of studying the interactions, but determines *inter alia* that the probe is unsuitable, and thus it is inoperative. Without a probe, one cannot study the binding between two proteins.

With regards to Seebach, the Examiner considered the disclosure of Seebach to be inapplicable, as the compounds of Seebach are γ-dipeptides, while the instantly claimed compounds are, at minimum, tetrapeptides with at least 1 α-amino acid and at least 2 cyclically constrained β-amino acids. The compounds are not coextensive or commensurate in scope, and thus cannot provide a 'well established utility' for the instant compounds based upon structure and amino acid content. Furthermore, Seebach merely provides further evidence that the compounds are not of a well established utility, as even Seebach states that the results, "promise a potential of γ-peptides for the development of peptidase-resistant peptidomimetic drugs." (page 777, last paragraph). Seebach makes no reference or inference that the compounds relate to tetrapeptides (or larger) with α and cyclically constrained β-amino acids that are instantly claimed.

More recently, SCHMITT (M.A. Schmitt, et al. J. Am. Chem. Soc. (2005) 127, pages 13130-13131) teaches compounds which are of a similar structure to those of the instant application (e.g. compound 1). Schmitt, while not contemporaneous with the instant application, provides that the art still does not provide a 'well established' utility, as Schmitt teaches that,

"Foldamers of this type [α/β-peptides] might mimic recognition surfaces on proteins and thereby disrupt specific protein-protein interactions [citing Sadowsky (2005)] or perform multifunctional catalysis of chemical reactions." (page13131, last paragraph). These are general utilities, not specific as required by the statute.

Disruption of protein-protein interactions is a generic utility, and the questions that arise are, "which specific protein-protein interactions are contemplated and disclosed to be disrupted by Applicant?" and, "to what end are the interactions disrupted (e.g. increasing clot formation, preventing angiogenesis, increasing milk production, etc.)?" The specification is silent to any specific protein-protein interaction that is disrupted or what is the effect of the disruption.

While chemical libraries are commercially available, they are sold as research tools, which are clearly delineated by MPEP § 2107.01(I) as being a utility which is not substantial (*see, e.g. page 7, Office Action mailed 5/4/05*). It is noted that the Exhibits previously presented do not discuss the particulars of the instant invention, e.g. examples of the instantly claimed compound, but rather generalizations on peptide libraries. Furthermore, as stated in the previous office action the MPEP states, "An assessment that focuses on whether the invention is useful only in a research setting thus does not address whether the invention is in fact "useful" in a patent sense. Instead, Office personnel must distinguish between inventions that have a specifically identified substantial utility and inventions whose asserted utility requires further research to identify or reasonably confirm." (Emphasis added; *see page 7, Office Action mailed 5/4/05*).

Furthermore, MPEP § 2107 (II)A(3) (the Examination Guidelines for the Utility Requirement) sets forth the test for determining a 'well established utility', stating, "If at any

time during the examination, it becomes readily apparent that the claimed invention has a well-established utility, do not impose a rejection based on lack of utility. An invention has a well-established utility if (i) a person of ordinary skill in the art would immediately appreciate why the invention is useful based on the characteristics of the invention (e.g., properties or applications of a product or process), and (ii) the utility is specific, substantial, and credible." (emphasis added). A 'well-established' utility requires that the utility is specific, substantial and credible, and not a 'general' utility, as is the case in the instant application because there is no specifically identified substantial utility and the invention requires further research and testing to determine what specific protein-protein interactions may be disrupted with the compounds of the instant invention.

(10) Response to Argument

Appellant's arguments are substantially the same as those presented prior to the Final action, and have been addressed previously and are discussed below. Further, Applicant presents new arguments that *Brenner v. Manson* (383 US 519), "Directly addresses the utility issues. It stands for the proposition that an invention lacks patentable utility if it includes only a general assertion of similarities to known compounds that are known to be useful **without sufficient corresponding explanation why the claimed compounds are believed to be similarly useful**. In the present application, however, Applicants clearly explain *why* the compounds are useful," (Emphasis in original, page 12) citing the following portion specification (page 25):

> The subject compounds are useful probes because the cyclically- constrained residues create secondary structures with high conformational stability at short oligomer lengths that are also resistant to enzymatic degradation. The invention thus enhances the control over γ-peptide folding preferences, thereby providing a larger "toolbox" of probes to be used in investigating the function of naturally-occurring proteins.

Respectfully, while the examiner agrees that *Brenner* (*Brenner, Comr. Pats. v. Manson*, 148 USPQ 689 (U.S. 1966), 383 US 519) is on point with the instant application and claims with regards to utility, the examiner disagrees with Appellant's assertion that the portion of the specification cited provides utility under § 101 and that *Brenner* supports their assertion of utility. *Brenner* discusses the statutory requirement of § 101 utility in detail. In the decision, *Brenner* states (internal citations omitted):

> These arguments for and against the patentability of a process which either has no known use or is useful only in the sense that it may be an object of scientific research would apply equally to the patenting of the product produced by the process. Respondent appears to concede that with respect to a product, as opposed to a process, Congress has struck the balance on the side of nonpatentability unless "utility" is shown. Indeed, the decisions of the CCPA are in accord with the view that a product may not be patented absent a showing of utility greater than any adduced in the present case. We find absolutely no warrant for the proposition that although Congress intended that no patent be granted on a chemical compound whose sole "utility" consists of its potential role as an object of use-testing, a different set of rules was meant to apply to the process which yielded the unpatentable product. That proposition seems to us little more than an attempt to evade the impact of the rules which concededly govern patentability of the product itself.
> This is not to say that we mean to disparage the importance of contributions to the fund of scientific information short of the invention of something "useful," or that we are blind to the prospect that what now seems without "use" may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion. "[A] patent system must be related to the world of commerce rather than to the realm of philosophy."

Here, as in *Brenner*, the compound may belong "to a class of compounds which [are] the subject of serious scientific investigation," but this does not constitute utility. Further, "In application of *Bremner*, 37 CCPA 1032, 1034, 182 F.2d 216, 217, 86 USPQ 74, 75, the court affirmed rejection by the Patent Office of both process and product claims. It noted that "no use for the products claimed to be developed by the processes had been shown in the specification." It held that "It was never intended that a patent be granted upon a product, or a process

producing a product, unless such product be useful." Nor was this new doctrine in the court. *See Thomas v. Michael*, 35 CCPA 1036, 1038-1039, 166 F.2d 944, 946-947, 77 USPQ 216, 217-218." (*Brenner* at 693). As discussed previously, the specification points to no specific, substantial or credible utility.

Further, *Brenner* states (internal citations omitted):

> Respondent does not-at least, in the first instance-rest upon the extreme proposition, advanced by the court below, that a novel chemical process is patentable so long as it yields the intended product and so long as the product is not itself "detrimental." Nor does he commit the outcome of his claim to the slightly more conventional proposition that any process is "useful" within the meaning of § 101 if it produces a compound whose potential usefulness is under investigation by serious scientific researchers, although he urges this position, too, as an alternative basis for affirming the decision of the CCPA. Rather, he begins with the much more orthodox argument that his process has a specific utility which would entitle him to a declaration of interference even under the Patent Office's reading of § 101. The claim is that the supporting affidavits filed pursuant to Rule 204(b), by reference to Ringold's 1956 article, reveal that an adjacent homologue of the steroid yielded by his process has been demonstrated to have tumor-inhibiting effects in mice, and that this discloses the requisite utility. We do not accept any of these theories as an adequate basis for overriding the determination of the Patent Office that the "utility" requirement has not been met.
>
> Even on the assumption that the process would be patentable were respondent to show that the steroid produced had a tumor-inhibiting effect in mice, we would not overrule the Patent Office finding that respondent has not made such a showing. The Patent Office held that, despite the reference to the adjacent homologue, respondent's papers did not disclose a sufficient likelihood that the steroid yielded by his process would have similar tumor-inhibiting characteristics. Indeed, respondent himself recognized that the presumption that adjacent homologues have the same utility has been challenged in the steroid field because of "a greater known unpredictability of compounds in that field." In these circumstances and in this technical area, we would not overturn the finding of the Primary Examiner, affirmed by the Board of Appeals and not challenged by the CCPA. (*Brenner* at 694).

Here, as in *Brenner*, there is high unpredictability in the art, as evidenced by KIM and SCHMITT, discussed above, and coupled with the absence of any specific, substantial or credible utility in the specification, supports a finding of a lack of utility.

Further, as discussed in MPEP 2107 (II)(B)(3)(ii), "The examiner should also ensure that there is an adequate nexus between the evidence and the properties of the now claimed subject matter as disclosed in the application as filed. That is, the applicant has the burden to establish a probative relation between the submitted evidence and the originally disclosed properties of the claimed invention." Here, as discussed previously, and below, there is no nexus between the affidavit provided and that which is disclosed in the specification. As such, Appellant has not established a probative relation between the submitted evidence and the originally disclosed properties of the claimed invention.

As discussed in the Final rejection, with regards to the rejection under 35 USC § 101 and 112, 1st ¶ (enablement), Applicant argues three points with Schmitt- 1) it is not contemporaneous with the filing of the instant application, 2) did no testing of the compounds therein and 3) they *hypothesized* a general utility. Applicant argues the reliance upon Schmitt in making the argument of lack of utility is improper asserting that the compounds are non-analogous and were not tested for utility.

Applicant states that the Office has indicated the utility cited by Dr. Gellman in the previously provide 132 Declaration was 'likely' sufficient for purposes of 112 1st paragraph, and provides an abstract from Petros (2004) showing the "utility was clearly well established in the art". Applicant further argues that Kim, while contemporaneous, is not analogous because it has different utility with different compounds.

Respectfully, the examiner disagrees. Applicant appears to misinterpret the examiner's previous position regarding the Declaration of Dr. Gellman. As discussed previously, Dr. Gellman's declaration *would have possibly* provided enablement had the instant specification

provided explicit direction to the selection Bcl-x_L/BH3 interaction and the specific probe that was used in the declaration. This was not a statement that utility was found in the instant Application, as there is no mention of such specific interaction found in the specification, and only finds support in the declaration. Given the infinite number of compounds embraced by the claims, the specification lacks any guidance as to how one would have selected the specific compounds used. Similarly, given the infinite number of protein-protein interactions, nothing in the specification provides guidance as to how one would have known to pick Bcl-x_L/BH3 and to use the specific compounds tested. Further, with regards to Petros, it was published after the instant Application and cannot be relied upon to show the asserted utility provided in the declaration was known at the time of filing. Again, nothing in the specification would lead one to look to Bcl from the infinite number of proteins, given the absence of any disclosure of any single protein in the specification-particularly the absence of any mention of Bcl. Similarly, in *In re Fisher*, 76 USPQ2d 1225 (Fed. Cir. 2005), the court stated, "Here, granting a patent to Fisher for its five claimed ESTs would amount to a hunting license because the claimed ESTs can be used only to gain further information about the underlying genes and the proteins encoded for by those genes. The claimed ESTs themselves are not an end of Fisher's research effort, but only tools to be used along the way in the search for a practical utility. Thus, while Fisher's claimed ESTs may add a noteworthy contribution to biotechnology research, our precedent dictates that the '643 application does not meet the utility requirement of §101 because Fisher does not identify the function for the underlying protein-encoding genes. Absent such identification, we hold that the claimed ESTs have not been researched and understood to the point of providing an immediate, well-defined, real world benefit to the public meriting the grant

of a patent." While *Fisher* is drawn to utility/enablement of ESTs, the fact pattern remains substantially similar. The instant compounds and the compounds in *Fisher* both have general, not specific, utility where the specific utility is nebulously defined such that further research is required to determine what is the practical utility.

With regards to Kim, the examiner has provided this reference to show that other compounds hypothesized to do what is instantly claimed failed to do so. The examiner acknowledges that Kim is different that the asserted utility provided by Dr. Gellman in the declaration, however it is within the asserted general utility of the disclosure. Regardless of the difference in structure, it clearly provides evidence that the art is highly unpredictable with regards to probing protein-protein interaction when the target is known and the ligand is a mimetic of something that is known to bind. They could not make a ligand probe for a known interaction, and thus could not study 'protein protein interactions', thus clearly casting doubt as to how one would develop a probe for a nebulous interaction when the interaction to be studied is not defined, nor are the proteins being studied.

With regards to Schmitt, the examiner agrees with many of Applicant's statements- it hypothesizes interaction, did not test any compounds and is not contemporaneous. However, the examiner sees this teachings as supporting the lack of enablement and utility. After the filing date of Applicant, again, another person merely hypothesizes that it may be possible, not that it is possible- or had been done. The level of skill and knowledge is clearly low, as it is evident that both prior to, and post (Kim and Schmitt, respectively), it had not been done and remained a mere hypothetical possibility.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Andrew D Kosar/
Primary Examiner, Art Unit 1654

Conferees:

/Cecilia Tsang/

Supervisory Patent Examiner, Art Unit 1654

/JON P WEBER/

Supervisory Patent Examiner, Art Unit 1657